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First record of Steppe Polecat *Mustela eversmanii* outside the protected areas network in Nepal

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ABSTRACT

The Steppe Polecat *Mustela eversmanii* was added to the fauna of Nepal in 2014. We obtained second record of the species in the country from Upper Humla, north-western Nepal in August 2021. This observation updates the distribution range of the species in Nepal while also enriching its southernmost records in Asia.

Keywords: Distribution update, *Mustela eversmanii*, Nepal, Steppe Polecat, Transhimalaya

1. INTRODUCTION

The Steppe Polecat *Mustela eversmanii*, also called the Steppe weasel, is listed as globally Least Concern (LC) by the IUCN Red List (Maran et al., 2016). It is a medium-sized slender mustelid distributed in central and eastern Europe, northwestern Georgia, central Asia, southern Russia, Mongolia, central, northwestern and northeastern China and Nepal (Chetri et al., 2014; Maran et al., 2016; Mitchell-Jones et al., 1999; Smith and Xie, 2013). There are only a few historical indications of its presence in Tibet (Utsang) and India (Ladakh) (Pocock, 1941) but they lack spatial information (Maran et al., 2016). The camera trap record from Dharkeko pass (29.17356°N, 84.13422°E) Upper Mustang, Nepal (Chetri et al. 2014) remains the most southerly record of the species across its global distribution range. Although its elevational range is up to 1000 m asl in Europe and up to 2,600 m asl in central Asia (Mitchell-Jones et al., 1999; Maran et al 2016), it has been camera-trapped at an elevation of 5050 m asl in Nepal (Chetri et al., 2014), the highest elevation at which the species has ever been recorded.

The Steppe Polecat inhabits open steppes, semi-deserts, pastures, grasslands, and agricultural lands (Mitchell-Jones et al. 1999). It usually avoids

forests and is solitary in nature (Maran et al., 2016; Smith and Xie, 2013). Its diet consists mainly of rodents, and lagomorphs, with small birds, reptiles, insects and fruits occurring occasionally (Hunter and Barrett 2018; Lanszki and Heltai, 2007; Moran et al., 2016). It is primarily nocturnal but can also be seen active during the day in areas away from humans (Smith and Xie 2013). It digs burrows by itself or expropriates the burrows of other animals by modifying them for its own use (Mitchell-Jones et al., 1999; Nowak and Paradiso, 1983; Smith and Xie, 2013).

The Steppe Polecat faces threats of intensive hunting and poaching for fur and pelt specially in European countries (Mitchell-Jones et al., 1999; Šálek et al., 2013). Other threats to the species include habitat loss, fragmentation and degradation of steppe and grassland habitats, and decline in prey base (Maran et al., 2016; Šálek et al., 2013). The species is currently assessed as Data Deficient in Nepal (Amin et al., 2018). This observation provides the first record of the species outside the protected areas network in Nepal and adds to the information on its distribution in South Asia.

2. METHODS

We obtained an observational record of a Steppe Polecat individual in Chyakpalung, Upper Humla, northwestern Nepal during August 2021 (Figure 1). The habitat of Chyakpalung is characterized by high-altitude Tibetan desert steppe with alpine grasslands interspersed with patches of shrubland (Miehe et al. 2016) (Figure 2). The area adjoins the Tibetan Autonomous Region (TAR) of China. Small mammals present in the area include Himalayan marmot *Marmota himalayana*, woolly hare *Lepus oiostolus*, Plateau pika *Ochotona curzoniae* and Tibetan dwarf hamster *Cricetulus alticola*. Himalayan wolf *Canis lupus chanco*, Tibetan fox *Vulpes ferrilata*, red fox *Vulpes vulpes*, Eurasian lynx *Lynx lynx*, and Altai weasel *Mustela altaica* are the coexisting carnivores.

We observed the animal at a distance of 5-10 meters and obtained photographs and video footage using hand-held camera (Canon EOS R5 with 100-500 mm lens). We noted the geographical position of the location using a Global Positioning System (GPS) device (Garmin etrex 10).

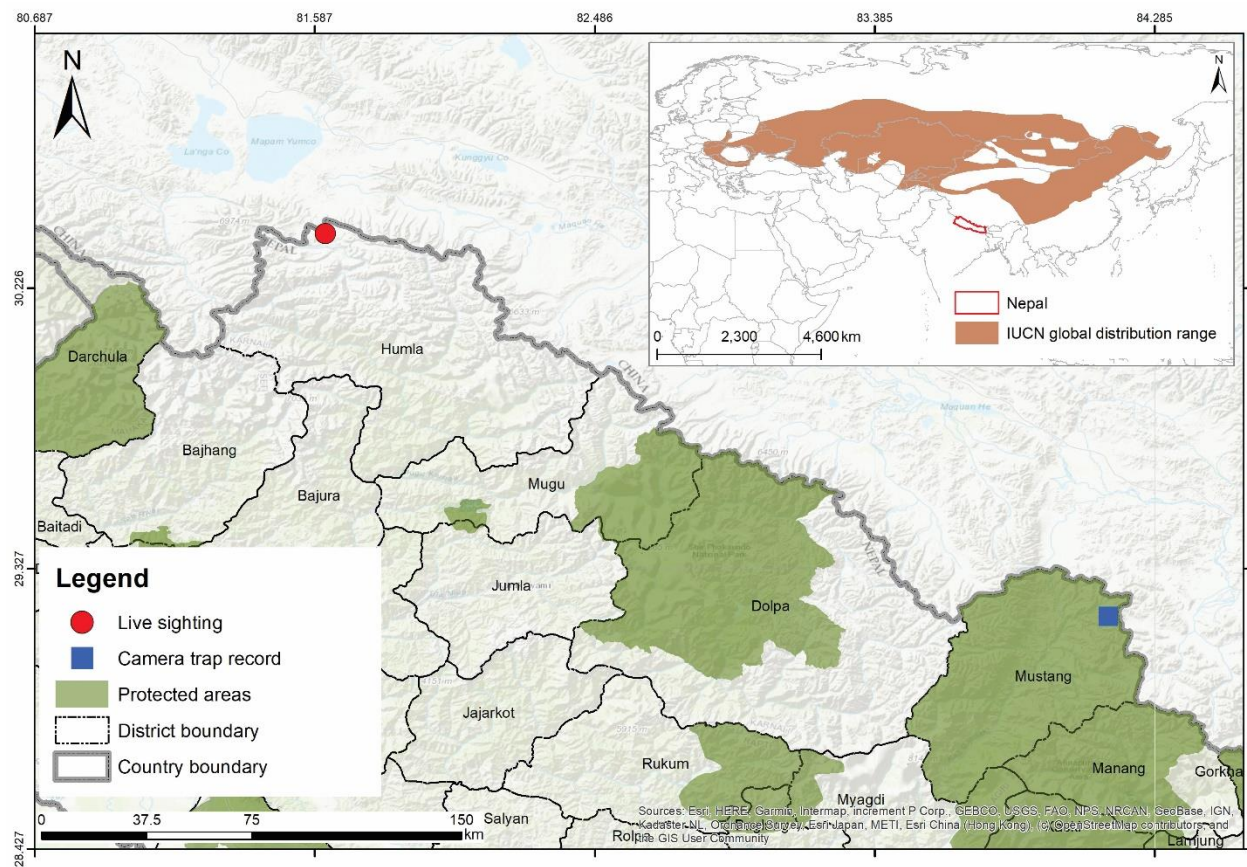


Figure 1. Steppe Polecat records in Nepal (2014-2021). The camera trap record from Upper Mustang is by Chetri et al. (2014). We observed a live animal in Upper Humla (this study). IUCN range map of Steppe Polecat is given in the inset.



Figure 2. Habitat of Steppe Polecat *Mustela eversmanii* in Chyakpalung, Upper Humla, Nepal. Note the burrows of Plateau pika. Photo: Sabita Gurung.



Figure 3. The Steppe Polecat photographed in Upper Humla, Nepal, during August 2021. Photo: Geraldine Werhahn.

3. RESULTS

On 2nd August 2021 at 09:00 NTP, we sighted a single individual of Steppe Polecat (Figure 3) at an elevation of 4925 m asl (N 30.40164°, E 81.62097°). We observed the animal for about 15 minutes during which it moved from one burrow (of Plateau pika) to other, frequently taking a pause to inspect the surrounding. We identified the animal as a Steppe Polecat by referring to the following characters: long slender body with dark brown to black thorax, long black guard hairs against a yellowish-brown underfur, dark brown mask on the light-colored muzzle and dark brown to black tail tip (Nowak and Paradiso 1983; Smith and Xie 2013). We observed numerous Plateau pikas in the area on other days. The nearest stream was 100 m south and a seasonally used motor trail (connecting Nepal with TAR of China to the northwest) was 1.3 km east of the observation site.

4. DISCUSSION

The IUCN range map for Steppe Polecat (Maran et al., 2016) does not include Nepal (also see figure 1) although it mentions Nepal as a country where the species is native. They might have excluded Nepal in the range map because the 2014 record has remained the only record of the species in the country so far. Our current record compliments the 2014 record and strengthens the likelihood of the species being resident in Nepal. It also indicates the possibility of the Steppe Polecat occurring in other localities along the Trans-himalayan range of Nepal, and similar habitats across South Asia. Records of the species from Upper Mustang (Chetri et al. 2014) and Upper Humla (this study), makes the Tibet record (Pocock 1941) plausible because both of these places in Nepal represent parts of the western end of Tibetan Plateau. Interestingly, Schaller (1997) shows a photograph of a Steppe Polecat observed in Donggi Co, northwestern Qinghai during June 17, 1985 (G.B. Schaller pers. comm. 2022). The current record further hints to the chances of its occurrence in Ladakh, India (Pocock 1941) because Upper Humla is closer to Ladakh than Upper Mustang.

We observed the animal visiting numerous burrows of Plateau pika during mid-morning (09:00 NPT). The behavior is suggestive of its hunting behavior which is mainly nocturno-crepuscular and terrestrial with most prey captured and killed in burrows (Hunter and Barrett 2018). This also goes in line with Li et al. (2012) and Smith and Xie (2013) who mention the species being a dietary specialist on Plateau pika on the Tibetan Plateau. A lack of its observation during our earlier research expeditions of past years may suggest that the species is found in very low densities and/or is very sensitive to human disturbances but also its nocturno-crepuscular activity pattern lowers chances of observing the species.

The Steppe Polecat is losing habitat in China due to conversion of steppe lands to agriculture (Moran et al. 2016). Our observation of a road network very close to the Steppe Polecat sighting location indicates that infrastructure development projects add to habitat loss for the species on the Tibetan Plateau landscape. We recommend more researches to improve the knowledge on the population status and ecology of the Steppe Polecat in Nepal including an investigation into its sensitivity to anthropogenic disturbances.

Authors' contributions

Conceptualization: SG, NK and GW. Data collection: SG, NK, TL, PRL, KT, KST, LL, MTL, TNL and GW. Original draft: SG, NK and GW. Writing review and editing: All authors.

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Ethical approval

Steppe Polecat *Mustela eversmannii* was reported in the study from Nepal. The Animal ethical guidelines are followed in the study for species observation & identification.

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Conflicts of interests

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are present in the paper.

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